

CLAIMS

1. A method for storing data on a storage media, the method comprising:
writing the data to the storage media in a density sufficiently high to cause
spontaneous degradation of the data over time;
5 automatically reading the data prior to occurrence of a hard error; and
writing the data a second time.
2. The method of Claim 1 further comprising:
10 checking if a refresh indicator satisfies a predetermined condition related to
degradation of the data over time; and
performing said “writing the data a second time” only if said predetermined
condition is satisfied.
3. The method of Claim 1 further comprising:
15 writing the refresh indicator to a location in the storage media distinct from
another location used to write the data.
4. The method of Claim 3 further comprising:
20 using a date of performance of said “writing the data to the storage media” to
determine the refresh indicator.
5. The method of Claim 4 wherein:
said using includes setting the refresh indicator to be said date; and
25 said predetermined condition is satisfied when said refresh indicator is older
than a current date by a predetermined time period.
6. The method of Claim 4 wherein:
said determining includes setting the refresh indicator to be a refresh date
obtained by adding a predetermined time period to said date; and
30 said predetermined condition is satisfied when said refresh date is older than a
current date.
7. The method of Claim 2 further comprising:
35 determining, subsequent to said writing, a difference between a first value of
the refresh indicator determined contemporaneous with said writing and a second
value of the refresh indicator determined at a current time;
wherein said predetermined condition is satisfied when said difference is
greater than a predetermined limit.

8. The method of Claim 2 further comprising:
using an amplitude of a readback signal of the data as the refresh indicator.

5 9. The method of Claim 8 wherein said amplitude is hereinafter "first
amplitude," and the method further comprises:

writing the first amplitude to a location in the storage media distinct from
another location used to write the data;

10 measuring a second amplitude of the readback signal contemporaneous with
said checking; and

said checking includes determining a difference between the second amplitude
and the first amplitude.

15 10. The method of Claim 9 wherein:

said checking further comprises comparing said difference with a
predetermined limit.

20 11. The method of Claim 10 wherein:

said checking further comprises comparing a percentage value of said
difference with a predetermined percentage.

12. The method of Claim 2 wherein:

the checking is performed periodically without scanning the entire storage
media.

25 13. The method of Claim 2 wherein:

the refresh indicator is saved contemporaneous with said writing.

14. The method of Claim 1 wherein:

30 said "automatically reading the data" and said "writing the data a second time"
are both performed prior to occurrence of a soft error.

15. The method of Claim 1 wherein:

35 said "automatically reading the data" and said "writing the data a second time"
are both performed on a schedule for all the data.

16. The method of Claim 15 wherein:

said schedule is periodic.

17. A storage medium carrying:
data written in a density sufficiently high to cause spontaneous degradation
over time; and
a refresh indicator that indicates a predetermined degradation of the data.

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18. The storage medium of Claim 17 wherein:
the data is held in a file; and
the refresh indicator is stored as an attribute of the file.

10 19. The storage medium of Claim 18 wherein:
the attribute is stored in a directory entry of a file system.

20. The storage medium of Claim 17 wherein:
the refresh indicator is based on a time when the data was most recently
15 written.

21. The storage medium of Claim 17 wherein:
the refresh indicator is based on an amplitude of a readback signal of the data
at the time of writing the data.

20 22. The storage medium of Claim 17 wherein:
the data is held as polarity of magnetized portion of the storage medium.

25 23. A carrier signal embedded with:
data; and
a refresh indicator that indicates a predetermined degradation of the data.

24. The carrier signal of Claim 23 wherein:
the refresh indicator is based on a time when the data was most recently
30 written.

25. The carrier signal of Claim 23 wherein:
the refresh indicator is based on an amplitude of a readback signal of the data
at the time of writing the data.

35 26. An apparatus including:
a storage medium embedded with data at a density sufficiently high to
spontaneously undergo thermal degradation with passage of time; and

an electronic device coupled to the storage medium to perform a refresh operation on the data when the data satisfies a predetermined condition related to the thermal degradation.

5 27. The apparatus of Claim 26, wherein:
 the predetermined condition is based on a time when the data was most recently written.

10 28. The apparatus of Claim 26, wherein:
 the predetermined condition is based on an amplitude of a readback signal of the data at the time of writing the data.

15 29. A storage medium embedded with computer instructions for:
 writing data to a magnetic medium; and
 automatically reading the data and writing the data back to the magnetic medium without scanning the magnetic medium.

20 30. The storage medium of Claim 30 wherein:
 during each writing the data is recorded at a density sufficiently high to spontaneously undergo thermal degradation with passage of time; and
 the computer instructions include checking if a refresh indicator satisfies a predetermined condition related to degradation of the data over time.

25 31. A carrier signal embedded with computer instructions for:
 writing data to a magnetic medium; and
 automatically reading the data and writing the data back to the magnetic medium without scanning the magnetic medium.

30 32. The carrier signal of Claim 31 wherein:
 during each writing the data is recorded at a density sufficiently high to spontaneously undergo thermal degradation with passage of time; and
 the computer instructions include checking if a refresh indicator satisfies a predetermined condition related to degradation of the data over time.